REMARKS

The Office Action mailed October 18, 2007, and made final, has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-15 and 17 are pending in this application. Claims 1-12 and 17 stand rejected. Claims 13-15 are withdrawn from consideration as being directed to a non-elected invention. Claim 16 is canceled.

The rejection of Claims 1-12 and 17 under 35 U.S.C. § 103(a) as being unpatentable over either Japanese Patent Reference No. 04325195 (hereinafter referred to as "Japan '195") or Korean Patent Reference No. 2001098082 (hereinafter referred to as "Korea '082") in view of U.S. Patent No. 5,873,518 to Richmond et al. (hereinafter referred to as "Richmond") is respectfully traversed.

The rejection is treated as two different rejections below. Specifically, the rejection of Claims 1-12 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Japan '195 in view of Richmond is traversed first. The rejection of Claims 1-12 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Korea '082 in view of Richmond is traversed second.

The rejection of Claims 1-12 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Japan '195 in view of Richmond is respectfully traversed.

Japan '195, to the extent understood, describes a controller (19) connected to a power switch (23), a water level sensor (22), a lid switch (24), a program selection switch (25), a start and stop switch (26) and a temperature sensor (35) that detects water supply temperature of a washing machine. A cold water supply and hot water supply supplying water at a temperature T2 is detected. Cold water supply and hot water supply valves are controlled such that a temperature T3 at setup water level L3 is within a determined fixed range. As such, Japan '195 describes that the temperature of the water supply is controlled based on temperature sensor output.

Richmond describes an appliance water valve assembly (12) which has a temperature and pressure sensing device (72) integrated therein. An appliance (10) includes the water valve assembly (12) in fluid communication with a pressure sense line (14). Air pressure in

the pressure sense line (14) is indicative of the water level within the washbasin (16). The water valve assembly (12) includes the sensing device (72), a pressure inlet (74), and a thermoconductor (76). The sensing device (72) is provided to sense or otherwise detect the temperature within the mixing chamber (70) and the water level pressure within the pressure channel (74a) by including a temperature sensing surface (72a) and a pressure sensing surface (72b). The pressure sensing surface (72b) is in fluid communication with the pressure channel (74a) of the pressure inlet (74). As such, Richmond describes a temperature sensing surface (72a) for sensing temperature and a pressure sensing surface (72b) for sensing pressure. The temperature is adjusted based on the sensed temperature, and the water level is controlled based on the sensed pressure.

Applicant respectfully traverses the assertion on Page 5 of the Office Action "the sensor of Richmond is disclosed as one capable of functioning as a pressure and/or temperature sensor . . . since the sensor, as previously mentioned, is capable of performing as a temperature and pressure sensor." In contrast to such an assertion, Applicant respectfully submits that Richmond describes a temperature sensing surface for sensing a temperature and a pressure sensing surface for sensing a pressure. Although both the temperature sensing surface and the pressure sensing surface are included in a sensing device, there are two separate sensing surfaces for sensing different parameters. As such, Richmond does not describe or suggest that one sensing surface is capable of sensing pressure and temperature.

Further, Applicant respectfully traverses the assertion on Page 3 of the Office Action that "Richmond (col. 5, lines 16-31) is cited disclosing [*sic*] that it is old and well known to employ a pressure type level sensor for measuring the height/volume of water in a washtub as well as the sensors being independent with the same controller the [*sic*] temperature of the water. It therefore would have been obvious to one having ordinary skill in the art to modify the sensor of either Japan'195 or Korean'082, to be the pressure and/or temperature type as taught by Richmond, since this is considered to be a substitution of equivalents...." As set forth above, Richmond describes a temperature sensing surface for sensing a temperature and a pressure sensing surface for sensing a pressure, and does not describe or suggest one sensing surface that senses both temperature and pressure.

Moreover, Applicant respectfully submits that a temperature sensor is not the equivalent of a pressure sensor, either structurally or functionally. As is known in the art, a temperature sensor includes a portion of material that has a physical property, such as

volume, resistance, expansion, contraction, and/or color, that changes in response to a change in temperature. The temperature sensor determines temperature by measuring the *change in a physical property* and converting the change to a temperature. Further, as is known in the art, a pressure sensor includes a material that is capable of being displaced, for example, a coil, air, and/or a membrane. The pressure sensor determines pressure by measuring the *displacement* of the material when a pressure is applied to the material. As such, a temperature sensor is not the structural or functional equivalent of a pressure sensor. Nor does Richmond describe or suggest that a temperature sensor and a pressure sensor are interchangeable. In fact, Richmond teaches away from interchangeability of the sensors by including separate sensing surfaces for sensing different parameters instead of including one sensing surface that senses more than one parameter.

Additionally, Applicant respectfully traverses the assertion on Page 3 of the Office Action that the claimed recitations are obvious because "[a]ll of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable result to one of ordinary skill in the art at the time of the invention." In contrast, Applicant respectfully submits that using pressure sensors to control a temperature in not a predictable result. In fact, Richmond supports the unpredictability of controlling temperature by using pressure sensors because Richmond includes a temperature sensing surface for sensing and/or controlling the temperature of water, and describes that the pressure sensing surface only senses the pressuring within a pressure sense line.

Further, Applicant respectfully submits that the Section 103 rejection of Claims 1-12 and 17 is not a proper rejection. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). MPEP § 2143. In the Office Action, the Examiner alleges that it would be obvious to combine the pressure sensing surface of Richmond with the temperature control system of Japan '195 to produce the presently claimed invention.

More specifically, Japan '195 describes that the temperatures of cold and hot water supplies are detected by temperature sensors, and cold and hot water supply valves are controlled such that a temperature at a setup water level is within a determined fixed range. Richmond describes a water valve assembly that includes a temperature sensing surface for

sensing temperature and a pressure sensing surface for sensing pressure. As such, in Richmond, the temperature is adjusted based on the sensed temperature, and the water level is controlled based on the sensed pressure. Richmond does not describe or suggest that the pressure sensing surface senses temperature or that the temperature is controlled based on the sensed pressure. If the pressure sensing surface of Richmond were substituted for the temperature sensors of Japan '195, the washing machine temperature control system of Japan '195 would not be able to sense the temperature of the water and would be rendered unsatisfactory for its intended purpose. As such, it would not have been obvious to one skilled in the art to combine the pressure sensing surface, as described in Richmond, with the temperature control system, as described in Japan '195. Accordingly, for this reason alone, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 and 17 be withdrawn.

Claim 1 recites a temperature control for a washing machine, the washing machine including a tub, a hot water valve, and a cold water valve, said temperature control comprising "a first pressure sensor positioned to sense a full fill level in the tub and configured to generate a full fill signal when the tub is full; and a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than the full fill level and corresponding to an adjustment level in the tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached, said first pressure sensor and said second pressure sensor operatively coupled to the hot water valve and the cold water valve, said first pressure sensor generating the full fill signal and said second pressure sensor generating the intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within the tub to control a wash water temperature."

Neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine, as recited in Claim 1. More specifically, neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a temperature control that includes a first pressure sensor and a second pressure sensor operatively coupled to a hot water valve and a cold water valve, the first pressure sensor generating a full fill signal and the second pressure sensor generating an intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within a tub to control a wash water temperature, as required by Applicant's

claimed invention. Rather, in contrast to the present invention, Japan '195 describes temperature sensors that detect temperatures of cold and hot water supplies, wherein cold and hot water supply valves are controlled based on the detected temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Japan '195 in view of Richmond.

Claims 2-5 depend from independent Claim 1. When the recitations of Claims 2-5 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-5 likewise are patentable over Japan '195 in view of Richmond.

Claim 6 recites a washing machine comprising "a tub; a cold water valve for controlling flow of cold water to said tub; a hot water valve for controlling flow of hot water to said tub; a first pressure sensor positioned to sense a full fill level in said tub and configured to generate a full fill signal when said tub is full; and a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than full and corresponding to an adjustment level in said tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached, said first pressure sensor and said second pressure sensor operatively coupled to said hot water valve and said cold water valve, said first pressure sensor generating the full fill signal and said second pressure sensor generating the intermediate fill signal to facilitate activating said hot water valve and said cold water valve in response to sensed pressure within said tub to control a wash water temperature."

Neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a washing machine, as recited in Claim 6. More specifically, neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a washing machine that includes a first pressure sensor and a second pressure sensor operatively coupled to a hot water valve and a cold water valve, the first pressure sensor generating a full fill signal and the second pressure sensor generating an intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within a tub to control a wash water temperature, as required by Applicant's claimed invention. Rather, in contrast to

the present invention, Japan '195 describes temperature sensors that detect temperatures of cold and hot water supplies, wherein cold and hot water supply valves are controlled based on the detected temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Japan '195 in view of Richmond.

Claims 7-12 depend from independent Claim 6. When the recitations of Claims 7-12 are considered in combination with the recitations of Claim 6, Applicant submits that dependent Claims 7-12 likewise are patentable over Japan '195 in view of Richmond.

Claim 17 recites a temperature control for a washing machine, the washing machine including a tub, a hot water valve, and a cold water valve, said temperature control comprising "a first pressure sensor positioned to sense a full fill level in the tub and configured to generate a full fill signal when the tub is full; a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than the full fill level and corresponding to an adjustment level in the tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached; and said hot water valve and said cold water valve operatively coupled to said first pressure sensor and said second pressure sensor, at least one of said hot water valve and said cold water valve actuated based on the fill signals generated by said first pressure sensor and said second pressure sensor to control a wash water temperature."

Neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine, as recited in Claim 17. More specifically, neither Japan '195 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine that includes a hot water valve and a cold water valve operatively coupled to a first pressure sensor and a second pressure sensor, wherein at least one of the hot water valve and the cold water valve is actuated based on fill signals generated by the first pressure sensor and the second pressure sensor to control a wash water temperature, as required by Applicant's claimed invention. Rather, in contrast to the present invention, Japan '195 describes temperature sensors that detect temperatures of cold and hot water supplies, wherein cold and hot water supply valves are controlled based on the

detected temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 17 is submitted to be patentable over Japan '195 in view of Richmond.

The rejection of Claims 1-12 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Korea '082 in view of Richmond is respectfully traversed.

Korea '082, to the extent understood, describes a control unit that senses the temperature of a tub before starting to feed water by using a temperature sensor, after the temperature and water level of washing water is set. The control unit feeds a specific amount of cold water through an opened cold water valve. The control unit calculates the feed amount of cold water per unit time after measuring the temperature of cold water with the temperature sensor. The control unit feeds a specific amount of cold and hot water through respective water valves. The control unit then detects the temperature of fed water and calculates the temperature of hot water by using the detected temperature of cold water. If the temperature of cold water is different from the fed cold or hot water, the control unit decides that the same amount and temperature of hot water is not fed. The control unit feeds cold water only without regard to temperature control routines. If hot water is fed, the control unit feeds water up to a slightly lower water level than the set level by controlling the two water valves. The control unit measures the temperature of water again and feeds water up to the set water level by controlling the valves according to a difference between the temperature of fed water and the set temperature. As such, Korea '082 describes that the temperature of the water in the tub is controlled based on output from the temperature sensor.

Richmond is described above.

Initially, Applicant respectfully submits that the Section 103 rejection of Claims 1-12 and 17 is not a proper rejection. If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). MPEP § 2143. In the Office Action, the Examiner alleges that it

would be obvious to combine the pressure sensing surface of Richmond with the control unit of Korea '082 that senses temperature to produce the presently claimed invention.

More specifically, Korea '082 describes that the temperature of water in a tub is sensed as the tub fills with water and that water valves are controlled based on the sensed temperatures such that the temperature of the water in the tub is controlled based on the sensed temperatures. Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure. As such, in Richmond, the temperature is adjusted based on the sensed temperature, and the water level is controlled based on the sensed pressure. Richmond does not describe or suggest that the pressure sensing surface senses temperature nor that the temperature is controlled based on the sensed pressure. If the pressure sensing surface of Richmond were substituted for the temperature sensor of Korea '082, the control unit of Korea '082 that senses temperature would not be able to sense the temperature of the water and would be rendered unsatisfactory for its intended purpose.

As such, it would not have been obvious to one skilled in the art to combine the pressure sensing surface, as described in Richmond, with the control unit that senses temperature, as described in Korea '082. Accordingly, for this reason alone, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 and 17 be withdrawn.

Claim 1 recites a temperature control for a washing machine, the washing machine including a tub, a hot water valve, and a cold water valve, said temperature control comprising "a first pressure sensor positioned to sense a full fill level in the tub and configured to generate a full fill signal when the tub is full; and a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than the full fill level and corresponding to an adjustment level in the tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached, said first pressure sensor and said second pressure sensor operatively coupled to the hot water valve and the cold water valve, said first pressure sensor generating the full fill signal and said second pressure sensor generating the intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within the tub to control a wash water temperature."

Neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine, as recited in Claim 1. More specifically, neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a temperature control that includes a first pressure sensor and a second pressure sensor operatively coupled to a hot water valve and a cold water valve, the first pressure sensor generating a full fill signal and the second pressure sensor generating an intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within a tub to control a wash water temperature, as required by Applicant's claimed invention. Rather, in contrast to the present invention, Korea '082 describes a control unit that senses the temperature of water in a tub as the tub fills with water and that controls water valves based on the sensed temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Korea '082 in view of Richmond.

Claims 2-5 depend from independent Claim 1. When the recitations of Claims 2-5 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 2-5 likewise are patentable over Korea '082 in view of Richmond.

Claim 6 recites a washing machine comprising "a tub; a cold water valve for controlling flow of cold water to said tub; a hot water valve for controlling flow of hot water to said tub; a first pressure sensor positioned to sense a full fill level in said tub and configured to generate a full fill signal when said tub is full; and a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than full and corresponding to an adjustment level in said tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached, said first pressure sensor and said second pressure sensor operatively coupled to said hot water valve and said cold water valve, said first pressure sensor generating the full fill signal and said second pressure sensor generating the intermediate fill signal to facilitate activating said hot water valve and said cold water valve in response to sensed pressure within said tub to control a wash water temperature."

Neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a washing machine, as recited in Claim 6. More specifically, neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a washing machine that includes a first pressure sensor and a second pressure sensor operatively coupled to a hot water valve and a cold water valve, the first pressure sensor generating a full fill signal and the second pressure sensor generating an intermediate fill signal to facilitate activating the hot water valve and the cold water valve in response to sensed pressure within a tub to control a wash water temperature, as required by Applicant's claimed invention. Rather, in contrast to the present invention, Korea '082 describes a control unit that senses the temperature of water in a tub as the tub fills with water and that controls water valves based on the sensed temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Korea '082 in view of Richmond.

Claims 7-12 depend from independent Claim 6. When the recitations of Claims 7-12 are considered in combination with the recitations of Claim 6, Applicant submits that dependent Claims 7-12 likewise are patentable over Korea '082 in view of Richmond.

Claim 17 recites a temperature control for a washing machine, the washing machine including a tub, a hot water valve, and a cold water valve, said temperature control comprising "a first pressure sensor positioned to sense a full fill level in the tub and configured to generate a full fill signal when the tub is full; a second pressure sensor positioned to sense an intermediate fill level, the intermediate fill level less than the full fill level and corresponding to an adjustment level in the tub, said second pressure sensor configured to generate an intermediate fill signal when the intermediate fill level is reached; and said hot water valve and said cold water valve operatively coupled to said first pressure sensor and said second pressure sensor, at least one of said hot water valve and said cold water valve actuated based on the fill signals generated by said first pressure sensor and said second pressure sensor to control a wash water temperature."

Neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine, as recited in Claim 17. More

specifically, neither Korea '082 nor Richmond, considered alone or in combination, describes or suggests a temperature control for a washing machine that includes a hot water valve and a cold water valve operatively coupled to a first pressure sensor and a second pressure sensor, wherein at least one of the hot water valve and the cold water valve is actuated based on fill signals generated by the first pressure sensor and the second pressure sensor to control a wash water temperature, as required by Applicant's claimed invention. Rather, in contrast to the present invention, Korea '082 describes a control unit that senses the temperature of water in a tub as the tub fills with water and that controls water valves based on the sensed temperatures, and Richmond describes a water valve assembly that includes a temperature sensing surface for sensing temperature and a pressure sensing surface for sensing pressure, wherein the temperature is adjusted based on the sensed temperature.

Accordingly, for at least the reasons set forth above, Claim 17 is submitted to be patentable over Korea '082 in view of Richmond.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 1-12 and 17 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,

Eric T. Krischke

Eric T. Krischke
Registration No. 42,769
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070